



The Original SCHMIDT fully integrated electronic Concrete Test Hammer

Extended Range of Applications

- Conversion curves are provided for a wide range of compressive concrete strength, including low and high strength concrete $f_c < 10 \text{ N/mm}^2$ (1.450 psi) and up to 170 N/mm^2 (24.650 psi)
- Conversion curves for different types of modern concrete are preset in the SilverSchmidt, based on tests performed by an independent institution

Compliance with Industry Standards

- Data collection and processing of test results comply with major industry standards
EN 12504-2, ENV 206
ASTM C805, ASTM D5873 (Rock)
BS 1881, part 202
JGJ/T 23-2001 (China)

Dependable Measuring Results

- High accuracy due to differential optical absolute velocity encoder
- Measurement inherently independent of impact direction, meaning no corrections necessary
- Built-in correction for carbonation and form factor gives increased test accuracy and dependability of test results
- Registration of true rebound coefficient yields extended resolution across a wider range
- SilverSchmidt can also display the classic "R"-value

Controlled and Extended Functionality

- Automatic control of functionality by monitoring impact energy
- Low power consumption, high capacity lithium-ion battery
- Tightly sealed instrument providing a higher number of impacts without servicing



On concrete walls, decks and pillars



...at any angle



... on soft concrete
(with mushroom plunger)

Applications

- Suitable for testing a wide variety of concrete, mortar, rock, paper and plastics
- Ideally suited for on-site testing
- Handy for difficult to access or confined test areas (i.e. working overhead)
- Especially convenient for testing on tunnel linings as measurements are independent of impact direction

Primary Customers

- Contractors
- Engineers, consultants
- Quality control, site supervision
- Universities, education and research establishments
- Laboratories
- Geologists

Operation

- Simple operation with the "one button" user interface
- Language independent through the use of graphic user interface
- Automatic conversion to the required measurement unit (N/mm², kg/cm², psi),
- Various statistics to comply with standards or user specified procedures
- Custom presets of test parameters for various testing scenarios can be stored and later recalled
- Quick review of previous measurements

Performing the Impact Test

Ergonomic, lightweight design facilitates reliable measuring



1. Place the unit perpendicular to the test surface

2. Load the unit by pushing it towards the test surface

3. Impact is triggered when the end position is reached

Determine the Compressive Strength

To obtain a reading in units of compressive strength select:

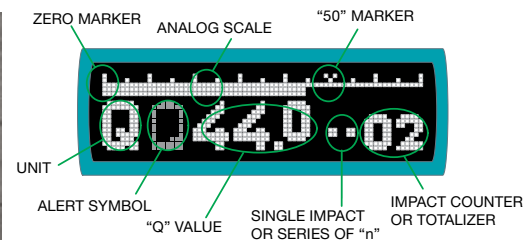
- Desired unit
- Length of series and averaging mode
- Carbonation depth (if applicable)
- Conversion curve for concrete mixture
- Form factor

Perform a test series of specified length. Manual cancellation of obvious outliers is possible. At the end of the series, the instrument will display the average converted to the desired unit.



Typical Display Window

Single Impact



A typical display after an impact shows:

- The actual "Q"-value
- A pseudo-analog scale
- A counter with double function either displays the last two digits of the 4-digit-totalizer or the actual number of valid impacts in a test series

Measuring Series



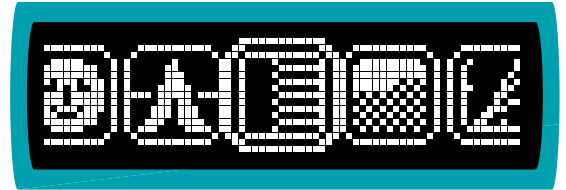
Median/Mean after a test series; compressive strength displayed in N/mm², psi, kg/cm²

Programming the SilverSchmidt



The SilverSchmidt can be controlled by one single **SELECT** button and by tilting the unit sideways

Hold the SilverSchmidt horizontally in front of you; enter Setup mode by clicking the **SELECT** button. The **SELECTOR** will appear on the display.



Scroll and center the desired icon by tilting the unit, then click the **SELECT** button to enter one of six intuitive menus allowing to program the SilverSchmidt for your needs.

Clicking on the center icon lets you review the last twenty measurements.

Measuring the true rebound coefficient ("Q"-value)

The classic "R"-value is the mechanical travel of the mallet on rebound. It is affected by its friction on the guide rod, the friction of the drag pointer on the scale, the influence of gravity during its travel, the relative velocity between unit and mechanical parts. This is true for all concrete test hammers currently on the market.

The "Q"-value [=rebound velocity divided by inbound velocity] represents the physical rebound coefficient.

It is virtually free of all the above error sources.

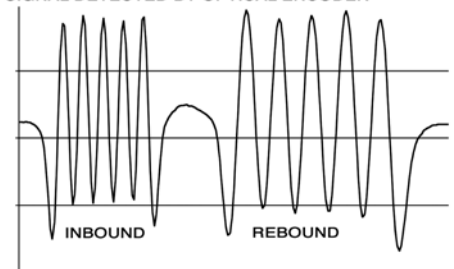
It is thus the indicator of choice to be used as a basis to convert to compressive strength.

The SilverSchmidt acquires the "Q"-value by measuring the velocity of impact and of rebound immediately before and after the impact.

The "Q"-value need not be corrected for impact direction.

There is however a clear relationship between the "Q" and the "R"-value.

SIGNAL DETECTED BY OPTICAL ENCODER



Technical Information

Mechanical data

	BN-type	BL-type
Impact energy	2.207 Nm	0.735 Nm
Hammer mass	115 g	115 g
Spring constant	0.79 N/mm	0.26 N/mm
Spring extension	75 mm	75 mm
Housing dimensions	55 x 55 x 250 mm (340 mm to tip of plunger)	
Dimensions (visible part of plunger)	105 x ø15 mm / radius of spherical tip 25 mm	
Weight	600 g	

Electrical data

Display	17 x 71 pixels; graphic / alphanumeric
Power consumption	~13mA measuring, ~4 mA setup and review, ~0.02 mA idle
Accumulator duty	>1000 impacts (before recharging)
Charger connection	USB type B (5V, 100 mA)

Useful ranges

Concrete compressive strength	10 N/mm ² to 170 N/mm ² (1.450 psi to 24.650 psi)
Operating temperature	0 to 50 °C
Storage temperature	-10 to 70 °C

Ordering Information

UNITS

341 10 000	SilverSchmidt BN (black cap with impact energy of 2.207 Nm) includes: SilverSchmidt BN with standard accessories including USB kit (USB cable and USB charger global), carrying strap, grinding stone, chalk, user manual, quick reference guide, certificate and carrying case
341 20 000	SilverSchmidt BL (silver cap with impact energy of 0.735 Nm) includes: SilverSchmidt BL with standard accessories including USB kit (USB cable and USB charger global), carrying strap, grinding stone, chalk, templates, user manual, quick reference guide, certificate and carrying case



SilverSchmidt
with carrying case and
accessories

ACCESSORIES

341 80 100	Carrying case complete
351 90 018	USB cable 1.8 m (6 ft)
341 80 112	USB charger, global
341 80 202	USB memory stick SilverSchmidt with documentation
341 80 203	Carrying strap (loop)
341 80 204	Impact templates
310 99 037	Grinding stone
325 34 018	Chalk

Optional Accessories

341 90 001	Mushroom plunger (for soft-material-testing i.e. young concrete)
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Services & Repair

- Full service and calibration through Proceq locations worldwide.

Patents pending. Subject to change without notice.

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